Amendments to the Claims:

None

Listing of Claims:

Claim 1 (previously presented): A method for forming a MOS transistor gate dielectric layer comprising:

providing a semiconductor substrate;

forming an oxide layer on the semiconductor substrate;

exposing the oxide layer to a high-density nitrogen plasma to incorporate nitrogen into the oxide layer thereby converting the oxide layer to an oxynitride layer; and

annealing said oxynitride layer in N_2O to form an oxynitride layer with a nitrogen concentration with less than 10% variation across the oxynitride layer.

Claim 2 (original): The method of claim 1 wherein the exposing the oxide layer to a high-density nitrogen plasma comprises a plasma power level of 700 – 900 watts.

Claim 3 (original): The method of claim 1 wherein annealing the oxynitride layer in N_2O comprises rapid thermal annealing at a temperature of 800°C – 1100°C for 10-60 seconds.

Claim 4 (previously presented): A method of forming a MOS transistor comprising:

providing a semiconductor substrate;

forming a gate dielectric layer less than 40 angstroms thick on the semiconductor substrate wherein the gate dielectric layer has a nitrogen concentration with less than 10% variation across the gate dielectric layer;

forming a conductive layer on said gate dielectric layer;

forming sidewall structures adjacent to said conductive layer; and

forming source and drain regions in the semiconductor substrate adjacent to said sidewall structures.

Claim 5 (previously presented): The method of claim 4 wherein said forming the gate dielectric layer comprises:

forming an oxide layer on the semiconductor substrate;

exposing the oxide layer to a high-density nitrogen plasma to incorporate nitrogen into the oxide layer thereby converting the oxide layer to an oxynitride layer; and

annealing said oxynitride layer in N_2O to form an oxynitride layer with a uniform nitrogen concentration profile.

Claim 6 (original): The method of claim 5 wherein the exposing the oxide layer to a high-density nitrogen plasma comprises a plasma power level of 700 – 900 watts.

Claim 7 (original): The method of claim 5 wherein annealing the oxynitride layer in N_2O comprises rapid thermal annealing at a temperature of 800°C – 1100°C for 10-60 seconds.

Claim 8 (original): The method of claim 4 wherein said uniform nitrogen concentration is greater than 6 atomic percent.

Claims 9-13 (canceled)

Claim 14 (previously presented): A method of forming a MOS transistor comprising:

providing a semiconductor substrate;

forming a gate dielectric layer less than 40 angstroms thick on the semiconductor substrate such that the gate dielectric layer has a nitrogen concentration greater than 6 atomic percent with less than 10% variation across the gate dielectric layer;

forming a conductive layer on said gate dielectric layer;

forming sidewall structures adjacent to said conductive layer; and

forming source and drain regions in the semiconductor substrate adjacent to said sidewall structures.

Claim 15 (original): The method of claim 14 wherein said forming said gate dielectric layer comprises:

forming an oxide layer on the semiconductor substrate;

exposing the oxide layer to a high-density nitrogen plasma to incorporate nitrogen into the oxide layer thereby converting the oxide layer to an oxynitride layer; and

annealing said oxynitride layer in N_2O to form an oxynitride layer with a uniform nitrogen concentration profile.

Claim 16 (original): The method of claim 15 wherein the exposing the oxide layer to a high-density nitrogen plasma comprises a plasma power level of 700 – 900 watts.

Claim 17 (original): The method of claim 16 wherein annealing the oxynitride layer in N_2O comprises rapid thermal annealing at a temperature of 800°C – 1100°C for 10-60 seconds.